



**UNITED STATES DEPARTMENT OF COMMERCE**  
**Patent and Trademark Office**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/369,510	08/06/99	HOSSACK	J 5050/584

LM31/0828  
WILLIAM A WEBB  
BRINKS HOFER GILSON & LIONE  
P O BOX 10395  
CHICAGO IL 60610

EXAMINER

CHOOBIN, M

ART UNIT

PAPER NUMBER

2721

DATE MAILED: 08/28/00

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.  
**09/369,510**

Applicant(s)

**Hossack**

Examiner  
**Choobin Mahmood**

Group Art Unit  
**2721**



☒ Responsive to communication(s) filed on Jun 23, 2000

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 35 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claim

☒ Claim(s) 1-23 is/are pending in the application.  
Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 1-23 is/are rejected.

☐ Claim(s) \_\_\_\_\_ is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some\* ☒ None of the CERTIFIED copies of the priority documents have been  
☐ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed on June 23, 2000 have been fully considered but they are not persuasive.

Applicants argue that, prior art does not store In the imaging system information indicative of the physiological cycle phase associated with each frame.

In response, referring to column 4, lines 46-54 clearly Gandini et al disclose this feature by, image frame memory, subtitling tissue motion (physiological cycle) such as heart valve performance.

Applicant argue that, prior art does not refer to information stored in an ultrasonic imaging system to identify the physiological cycle phase of the frame.

In response, Gandini clearly disclose this feature in Fig. 1.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Rebecca Gandini (U.S. 5645066).

As to claim 1, Gandini et al disclose a medical diagnostic ultrasound imaging method comprising:

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- (a) acquiring image data for at least two frames, each frame identified with a respective phase of a physiological cycle; (column 4, line 46-55)
- (b) constructing a multi-phase, multi-frame data set from the image data by registering the image data based on image motion between the frames, (column 4, line 45-55)
- © generating a plurality of images from the multi-frame data set, each image associated with a respective phase of the physiological cycle; and (column 2, line 65-67 and column 4, line 4-10)
- (d) displaying the images in sequence to a user. (column 2, line 61-65)

As to claim 2, Gandini et al disclose (b1) associating a separate position with each frame of image data; and (column 4, line 25-45 and column 5, line 66 through column 6, line 10)

(b2) creating a plurality of separate multi-frame data sets included in the multi-phase, multi-frame data set, each separate multi-frame data set identified with a respective phase of the physiological cycle (column 7, line 40-45).

As to claim 3, Gandini et al disclose associating a separate position with each frame of image data associated with one selected phase of the physiological cycle; and (column 5, line 66 through column 6, line 10)

(b2) using the positions associated with the one selected phase of the physiological cycle to create the multi-frame, multi-phase data set for all of the image data. (Column 2, line 35-45)

As to claim 4, Gandini et al disclose the multi-phase, multi-frame data set constructed in (b) comprises a 3-D data set. (column 1, line 5-9)

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As to claim 5, Gandinin et al disclose the multi-phase, multi-frame data set constructed in (b) comprises a extended field of view data set.(column 6, line 40-55)

As to claim 6, Gandini et al disclose a medical diagnostic ultrasound imaging means comprising:

means for acquiring image data for at least two frames, each frame identified with a respective phase of a physiological cycle; means for constructing a multi-phase, multi-frame data set from the image data, said constructing means comprising means for registering the image data based on image motion between frames; means for generating a plurality of images from the multi-frame data set, each image associated with a respective phase of the physiological cycle; and means for displaying the images in sequence to a user.(see above)

As to claim 7, Gandini et al disclose means for associating a separate position with each frame of image data; and means for creating a plurality of separate multi-frame data sets included in the multi-phase, multi-frame data set, each separate multi-frame data set identified with a respective phase of the physiological cycle.(see above)

As to claim 8, Gandini et al disclose means for associating a separate position with each frame of image data associated with one selected phase of the physiological cycle; and means for using the positions associated with the one selected phase of the physiological cycle to create the multi-phase, multi-frame data set for all of the image data.(see above)

As to claim 9, Gandini et al disclose the multi-phase, multi-frame data set comprises a 3-D data set(see above).

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As to claim 10, Gandini et al disclose the multi-phase, multi-frame data set comprises a extended field of view data set (see above).

As to claim 11, Gandini et al disclose a medical diagnostic ultrasound imaging method comprising:

- (a) acquiring image data for at least two frames, each frame identified with a respective phase of a physiological cycle;
- (b) generating a plurality of extended field of view images from the image data, each image associated with a respective phase of the physiological cycle; and
- © displaying the images in sequence to a user.(see above)

As to claim 12, Gandini et al disclose:

- (bl) associating a separate position with each frame of image data; and
- (b2) creating a plurality of separate extended field of view data sets, each data set identified with a respective phase of the physiological cycle.(see above)

As to claim 13, Gandini et al disclose (bl) associating a separate position with each frame of image data associated with one selected phase of the physiological cycle; and

(b2) using the positions associated with the one selected phase of the physiological cycle to create the multi-phase extended field of view data set for all of the image data (see above).

As to claim 14, Gandini et al disclose a medical diagnostic ultrasound imaging system comprising:

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(a) means for acquiring image data for at least two frames, each frame identified with a respective phase of a physiological cycle;

(b) means for generating a plurality of extended field of view images from the image data, each image associated with a respective phase of the physiological cycle; and

© means for displaying the images in sequence to a user.(see above)

As to claim 15, Gandini et al disclose image data; and means for associating a separate position with each frame of means for creating a plurality of separate extended field of view data sets, each data set identified with a respective phase of the physiological cycle (see above).

As to claim 16, Gandini et al disclose means for associating a separate position with each frame of image data associated with one selected phase of the physiological cycle; and means for using the positions associated with the one selected phase of the physiological cycle to create a multi-phase extended field of view data set for all of the image data (see above).

As to claims 17 and 21, Gandini et al disclose each frames is acquired in at a respective, known phase of physiological cycle (column 4, lines 51-54).

As to claim 18 and 22, Gandini et al disclose each frames is stored in a manner indicative of the respective , known phase of the physiological cycle (column 4, lines 55-65 and Fig.3).

As to claims 19,20 and 23, Gandini et al disclose each image is generated in form selected ones of the frames identified with the same respective phase of the physiological cycle as the image (column 4, lines 51-54).

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4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

### **CONTACT INFORMATION**

Any inquiry concerning this communication from the examiner should be directed to Mahmood Choobin whose telephone number is (703) 306-5787.

The examiner can normally be reached on Monday through Friday from 8:00 a.m. to 4:30 p.m.

If attempts to reach examiner by telephone are unsuccessful, the examiner's supervisor, Leo Boudreau, can be reached at (703) 305-4706.

Any response to this action should be mailed to:

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or faxed to:

(703) 308-9051, (for formal communications intended for entry)

(703) 308-5397 (for informal or draft communications, please label "PROPOSED"

or "DRAFT")

Hand delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,  
Arlington, VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be  
directed to the Group Receptionist whose telephone number is (703)305-3900.

Mahmood Choobin

Patent Examiner

Group Art 2721

August 24, 2000

Matthew C. Bella  
Primary Examiner

